

This Class 205 is considered to be an integral part of Class 204 (see the Class 204 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 204.

- 43 **ELECTROLYTIC PROCESS INVOLVING ACTINIDE SERIES ELEMENTS OR COMPOUND (AT. NO. 89+) (PRODUCT, PROCESS, COMPOSITION, AND METHOD OF PREPARING COMPOSITION)**
- 44 .Plutonium
- 45 .Thorium
- 46 .Uranium
- 47 ..Utilizing fused bath
- 48 ..Involving electrolytic coating, etching, or polishing
- 49 ..Uranium containing compound produced
- 50 **PRODUCT PRODUCED BY ELECTROLYSIS INVOLVING ELECTROLYTIC MARKING, BATTERY ELECTRODE ACTIVE MATERIAL FORMING, ELECTROFORMING, OR ELECTROLYTIC COATING**
- 51 **SUPERCONDUCTOR PREPARATION INVOLVING ELECTROLYTIC MARKING, ELECTROFORMING OR ELECTROLYTIC COATING, OR COMPOSITION THEREFOR**
- 52 **ELECTROLYTIC MARKING OR COMPOSITION THEREFOR**
- 53 .Utilizing inorganic color-forming material other than carbon
- 54 .Utilizing organic color-forming material
- 55 ..Heterocyclic color-forming material
- 56 ..Hydroxyl or carboxyl group-containing color-forming material
- 57 **UTILIZING ELECTROLYSIS TO FORM BATTERY ELECTRODE ACTIVE MATERIAL OR COMPOSITION THEREFOR**
- 58 .Organic active material other than organic metal salt

- 59 .Group IA metal-containing active material (e.g., Li, Na, K, etc.)
- 60 .Nickel-containing active material
- 61 ..Cadmium-containing
- 62 .Cadmium-containing active material
- 63 .Lead-containing active material
- 64 .Zinc-containing active material
- 65 .Silver-containing active material
- 66 .Iron- or tin-containing active material
- 67 **ELECTROFORMING OR COMPOSITION THEREFOR**
- 68 .Recording device
- 69 .Printing plate or electrototype
- 70 .Mold, mask, or masterform
- 71 .Mirror or reflector
- 72 .Ornamental article
- 73 .Roll, ring, or hollow body
- 74 .Powder, flakes, or colloidal particles
- 75 .Perforated or foraminous article
- 76 .Sheet, web, wire, or filament
- 77 ..Of indeterminate length
- 78 .Electrical product
- 79 .Optical element
- 80 **ELECTROLYTIC COATING (PROCESS, COMPOSITION AND METHOD OF PREPARING COMPOSITION)**
- 81 .Involving measuring, analyzing, or testing
- 82 ..Controlling coating process in response to measured or detected parameter
- 83 ...Parameter is current, current density, or voltage
- 84 ...Parameter is thickness, weight, or composition of coating
- 85 .Displacement or replacement coating
- 86 .Employing internal battery action during coating
- 87 .Simultaneous deplating and plating
- 88 .Utilizing subatmospheric or superatmospheric pressure during coating
- 89 .Utilizing magnet or magnetic field during coating

90	..Ferromagnetic material deposited	112	.Coating is discontinuous single metal or alloy layer (e.g., islands, porous layer, etc.)
91	.Utilizing electromagnetic wave energy during coating (e.g., visible light, etc.)	113	..Coating is microcracked
92	..Energy produced by laser	114	.Uniting two separate solid materials
93	.Contacting coating as it forms with solid member or material other than electrode	115	.Repairing
94	.Utilizing mist prevention	116	.Mirror or reflector produced
95	.Coating has specified thickness variation	117	.Utilizing brush or absorbent applicator
96	.Controlling current distribution within bath	118	.Coating selected area
97	..Shaped counterelectrode	119	..Depositing ferromagnetic coating or coating ferromagnetic substrate
98	.Treating process fluid by means other than agitation or heating or cooling	120	..Design or ornamental article produced
99	..Purifying electrolyte	121	...Predominantly nonmetal electrolytic coating (e.g., anodic oxide, etc.)
100	..Treating rinse solution (e.g., rinse water, etc.)	122	..Specified product produced
101	..Regenerating or maintaining electrolyte (e.g., self-regulating bath, etc.)	123	...Product is semiconductor or includes semiconductor
102	.Depositing predominantly single metal or alloy coating on single metal or alloy using specified waveform other than pure DC	124	....Predominantly nonmetal electrolytic coating (e.g., anodic oxide, etc.)
103	..Reversing current or voltage	125	...Product is circuit board or printed circuit
104	..Nonreversing pulsed current or voltage	126	....Electroless coating from bath containing metal ions and reducing agent prior to electrolytic coating
105	.Depositing predominantly single metal or alloy coating on nonmetal using specified waveform other than pure DC or 60 Hz sine wave AC (e.g., single metal or alloy coating within or above pores of anodic oxide layer, etc.)	127	...Product is printing member
106	.Forming nonmetal coating using specified waveform other than pure DC or 60 Hz sine wave AC (e.g., anodic oxide coating, etc.)	128	..Simultaneous or sequential coating of a plurality of separate articles
107	..Reversing current or voltage	129	..Selectively coating moving substrate of indeterminate length (e.g., strip, wire, fiber, etc.)
108	..Nonreversing pulsed current or voltage	130	...Completely coating one side of strip
109	.Coating contains embedded solid material (e.g., particles, etc.)	131	..Internal coating (e.g., coating inside of cylinder, etc.)
110	..Abrasive article produced	132	...Moving counterelectrode
111	.Coating is dendritic or nodular	133	..Directing electrolyte to selected area (e.g., jet plating, etc.)
		134	..Partially submerging substrate in bath
		135	..Utilizing specified mask material
		136	..Utilizing means other than mask
		137	.Coating moving substrate

138	..Indeterminate length (e.g., strip, wire, fiber, etc.)	163	...Conductive material applied to substrate by painting, spraying, or immersion (e.g., electroless plating, etc.)
139	...Predominantly aluminum substrate	164	..Synthetic resin substrate
140	...Tin-containing coating	165	...Conductive material applied to substrate by vacuum or vapor deposition
141	...Zinc-containing coating	166	...Conductive material applied to substrate by painting, spraying, or immersion
142	...Chromium-containing coating	167	....Conductive material applied to substrate by plating from bath containing metal ions and reducing agent (e.g., electroless plating, etc.)
143	..Rotary (e.g., barrel plating, etc.)	168	.....Resin contains etchable filler
144	..Utilizing fluidized bed (e.g., coating particles, flakes, granules, etc.)	169	.....Conductive material is copper or nickel
145	..Simultaneous or sequential coating of a plurality of separate articles	170	.Forming multiple superposed electrolytic coatings
146	..Reciprocating substrate	171	..At least one anodic coating
147	.Applying current to substrate without mechanical contact (e.g., liquid contact, bipolar electrode, etc.)	172	...Predominantly aluminum substrate
148	.Agitating or moving electrolyte during coating	173	....Electrolytically depositing material only within or above pores of anodic coating (e.g., electrolytic coloring, etc.)
149	.Coating predominantly single metal or alloy substrate of specified shape	174	.....Multiple anodic coatings
150	..Perforated, foraminous, or permeable substrate	175	....Multiple anodic coatings
151	..Cylinder, roll, or hollow article	176	..At least one alloy coating
152	..Sheet, plate, or foil	177	..At least one predominantly zinc metal coating
153	...Predominantly aluminum substrate	178	..At least one chromium-containing coating
154	...Tin-containing coating	179	...Multiple chromium-containing coatings
155	...Zinc-containing coating	180	...At least one predominantly nickel metal coating
156	...Chromium-containing coating	181	..At least one predominantly nickel metal coating
157	.Coating predominantly semiconductor substrate (e.g., silicon, compound semiconductor, etc.)	182	..At least one predominantly copper metal coating
158	.Coating a substrate predominantly comprised of nonconductive material to which conductive material or material which can be converted into conductive material has been added (e.g., nonconductive polymer substrate containing carbon or copper oxide particles, etc.)	183	.Forming nonelectrolytic coating before depositing predominantly single metal or alloy electrolytic coating
159	.Coating predominantly nonmetal substrate	184	..Nonelectrolytic coating or coatings all contain single metal or alloy
160	..Fabric substrate	185	...Nonelectrolytic coating from zincate or stannate bath
161	..Perforated, foraminous, or permeable substrate	186	...Nonelectrolytic coating by vacuum or vapor deposition
162	..Ceramic or glass substrate		

CLASS 205 ELECTROLYSIS: PROCESSES, COMPOSITIONS USED THEREIN, AND
METHODS OF PREPARING THE COMPOSITIONS

187	...Nonelectrolytic coating by plating from bath containing metal ions and reducing agent (e.g., electroless plating, etc.)	204	.....Sealing agent includes organic constituent
188	..Forming nonelectrolytic coating before forming nonmetal electrolytic coating	205	.Treating substrate prior to coating
189	..Predominantly titanium, vanadium, zirconium, niobium, hafnium, or tantalum nonelectrolytic coating	206	..Contacting substrate with solid member or material (e.g., polishing, rolling, etc.)
190	..Predominantly aluminum nonelectrolytic coating	207	...Heating substrate
191	..Forming nonelectrolytic coating after depositing predominantly single metal or alloy electrolytic coating	208	...Blasting substrate with particulate material
192	..Nonelectrolytic coating by vacuum or vapor deposition of a predominantly single metal or alloy coating	209	..Heating substrate other than by contact with liquid
193	..Nonelectrolytic coating by immersion in bath of molten metal to form predominantly single metal or alloy coating (e.g., hot dipping, etc.)	210	..Treating substrate with liquid other than tap water (e.g., for removing foreign material, etching, activating, etc.)
194	..Nonelectrolytic coating is predominantly nonmetal	211	...Liquid is nonaqueous (e.g., hydrocarbon solvent, fused bath, etc.)
195	...Nonelectrolytic coating is ceramic, glass, or vitreous enamel	212	...Predominantly titanium, vanadium, zirconium, niobium, hafnium, tantalum, molybdenum, or tungsten substrate
196	...Nonelectrolytic coating is predominantly organic material (e.g., paint, etc.)	213	...Predominantly aluminum substrate
197	...Nonelectrolytic coating is phosphorus- or chromium-containing (e.g., phosphate, chromate, etc.)	214	....Graining or roughening chemically or electrolytically
198	..Forming nonelectrolytic coating after forming nonmetal electrolytic coating	215	...Predominantly copper, zinc, or tin substrate
199	..Electrolytic coating is oxygen-containing (e.g., chromate, silicate, oxide formed by anodizing, etc.)	216	...Predominantly cobalt or nickel substrate
200	...Predominantly titanium, vanadium zirconium, niobium, hafnium, or tantalum substrate	217	...Predominantly iron or steel substrate
201	...Predominantly aluminum substrate	218	....Steel containing chromium or nickel (e.g., stainless steel, etc.)
202	....Nonelectrolytic coloring (including nonelectrolytic coloring and sealing)	219	...Electrolytic treatment
203	....Sealing	220	.Treating electrolytic or nonelectrolytic coating after it is formed
		221	..Selected area
		222	..Contacting with solid member or material (e.g., buffing, burnishing, polishing, etc.)
		223	..Etching of coating
		224	..Heating
		225	...Tin-containing coating
		226	....Coating is fused (e.g., reflowing, flow brightening, etc.)
		227	...Single metal or alloy coating on single metal or alloy substrate
		228	....Coating is at least partially diffused or forms alloy

229	..Predominantly nonmetal electrolytic coating	260	....Organic sulfoxy-containing
230	.Utilizing fused bath	261	.Depositing predominantly single metal coating
231	..Reactive coating (e.g., by diffusion, etc.)	262	..Group VIIB transition metal (i.e., Mn, Tc, or Re)
232	..Depositing predominantly alloy coating	263	..Silver
233	..Depositing aluminum coating	264	..Platinum group metal
234	.Utilizing nonaqueous bath	265	...Palladium
235	..Coating is predominantly organic material	266	..Gold
236	..Depositing predominantly alloy coating	267	...Utilizing organic compound-containing bath
237	..Deposition aluminum coating	268	....Inorganic cyanide-containing
238	.Depositing predominantly alloy coating	269	..Cobalt
239	..Copper-containing alloy	270	..Iron
240	...Including zinc (e.g., brass, etc.)	271	..Nickel
241	...Including tin (e.g., bronze, etc.)	272	...Utilizing specified anode
242	...Including noble metal (e.g., gold-copper-cadmium alloy, etc.)	273	...Utilizing sulfamate-containing bath
243	..Chromium is predominant constituent	274	...Utilizing organic sulfoxy compound-containing bath
244	..Zinc is predominant constituent	275	....And acetylenic compound-containing
245	...Including iron group metal (i.e., Fe, Co, or Ni)	276	....And polyether-containing
246	....Nickel	277	....And nitrogen-heterocyclic compound-containing
247	..Gold is predominant constituent	278	...Utilizing oxygen-heterocyclic compound-containing bath
248	...Utilizing sulfite-containing bath	279	...Utilizing nitrogen-heterocyclic compound-containing bath
249	...Utilizing phosphonic or phosphinic acid or derivative-containing bath	280	...Utilizing organic carbonyl compound-containing bath
250	...Including iron group metal	281	..Cadmium
251	...Including arsenic, indium, or thallium	282	...Utilizing inorganic cyanide-containing bath
252	..Tin, lead, or germanium is predominant constituent	283	..Chromium
253	...Utilizing organic compound-containing bath	284	...Utilizing specified anode
254	....Organic sulfoxy-containing	285	...Colored chromium coating
255	..Group VIII metal is predominant constituent (i.e., Fe, Co, Ni, Pt, Pd, Rh, Ru, Ir, or Os)	286	...Utilizing inorganic fluorine-containing bath
256	...Utilizing specified anode	287	...Utilizing trivalent chromium-containing bath
257	...Platinum group metal-containing alloy (i.e., contains Pt, Pd, Rh, Ru, Ir, or Os)	288	....Thiocyanate-containing
258	...Phosphorus-containing alloy	289	....Organic carboxyl compound-containing
259	...Utilizing organic compound-containing bath	290	...Utilizing organic compound-containing bath
		291	..Copper
		292	...Utilizing specified anode
		293	...Utilizing inorganic cyanide-containing bath
		294	....Selenium or tellurium-containing
		295	...Utilizing alkaline bath

296	...Utilizing organic compound-containing bath	328	....Utilizing sulfuric acid-containing bath
297	....Nitrogen-heterocyclic compound-containing	329	.....Organic compound-containing
298	.....And organic sulfur compound-containing	330	.....Organic carboxyl compound-containing
299	..Lead	331	.....Organic sulfoxy compound-containing
300	..Tin	332	....Utilizing organic compound-containing bath
301	...Utilizing alkaline bath	333	..Oxide-containing coating (e.g., lead dioxide, etc.)
302	...Utilizing organic compound-containing bath	334	ELECTROLYTIC SYNTHESIS (PROCESS, COMPOSITION, AND METHOD OF PREPARING COMPOSITION)
303	....Organic carbonyl compound-containing	335	.Involving measuring, analyzing, or testing during synthesis
304	.....Aldehyde-containing	336	..Utilizing fused bath (e.g., eliminating anode effect in a fused bath, etc.)
305	..Zinc	337	..Current, current density, or voltage
306	...Utilizing inorganic cyanide-containing bath	338	.Utilizing subatmospheric or superatmospheric pressure during synthesis
307	....Nitrogen-heterocyclic compound-containing	339	.Utilizing magnet or magnetic field during synthesis
308	....Organic carbonyl compound-containing	340	.Utilizing electromagnetic wave energy during synthesis (e.g., visible light, etc.)
309	...Utilizing alkaline bath	341	.Utilizing AC or specified wave form other than pure DC
310	....Nitrogen-heterocyclic compound-containing	342	..Reversing nonpulsed current or voltage
311	...Utilizing organic compound-containing bath	343	.Involving fuel cell
312	....Nitrogen-heterocyclic compound-containing	344	.Utilizing bipolar membrane
313	....Organic sulfur compound-containing	345	.Utilizing plural distinct electrolytic cells where the cells are separate containers
314	....Organic carbonyl compound-containing	346	..Including decomposing or purifying cell
315	..Antimony	347	..Identical plural distinct cells
316	.Forming nonmetal coating	348	.Utilizing fluidized bed or particulate electrode
317	..Coating is predominantly organic material	349	.Recycling electrolytic product produced during synthesis back to production cell
318	..Phosphorus-containing coating (e.g., phosphate, etc.)	350	.Treating electrode, diaphragm, or membrane during synthesis (e.g., corrosion prevention, etc.)
319	..Chromium-containing coating (e.g., chromate, etc.)		
320	..Predominantly iron or steel substrate		
321	..Predominantly magnesium substrate		
322	..Predominantly titanium, vanadium, zirconium, niobium, hafnium, or tantalum substrate		
323	..Predominantly aluminum substrate		
324	...Anodizing		
325	....Specified alloy substrate		
326	....Utilizing alkaline bath		
327	....Utilizing chromium-containing bath		

351	.Treating electrolyte or bath without removal from cell other than agitating, moving, regenerating, replenishing, or replacing consumed material during synthesis	377	....Utilizing membrane or diaphragm between electrodes
352	.Utilizing emulsion, dispersion, or suspension electrolyte system	378	....Utilizing spacer between electrodes
353	.Utilizing electrolyte system having two or more separate immiscible layers	379	....Utilizing nonmetal cell lining other than inorganic carbon or graphite
354	.Utilizing fused bath	380	....Utilizing specified electrode other than consumable electrode (e.g., cylindrical, tapered, etc.)
355	..Organic compound produced	381	.....Inclined electrode (not horizontal or vertical)
356	...Halogen containing	382	.....Liquid electrode
357	..Inorganic compound produced	383	.....Bipolar electrode
358	...Silicon, boron, or phosphorus containing	384	.....Coated electrode
359	...Halogen containing	385	.....Specified electrode composition other than consumable inorganic carbon or graphite
360	...Nitrogen containing	386	.....Nonconsumable electrode having inorganic carbon or graphite and a nonmetal containing material (e.g., cermet, etc.)
361	...Sulfur containing	387	.....Nonmetal containing (e.g., metal oxide, carbide, etc.)
362	...Oxygen containing	388	....Utilizing coated or treating electrode connecting or positioning means (e.g., coating, cooling, etc.)
363	..Alloy produced	389	....Specific replenishing, replacing, or feeding of consumable electrode material
364	...Silicon or aluminum containing	390	....Involving specific process startup other than mere turn on
365	...Iron, cobalt, or nickel containing	391	....Collecting or controlling fumes or gases produced during synthesis
366	...Lead, zinc, titanium, zirconium, or hafnium containing	392	....Utilizing specific method or means to feed or replenish electrolyte or bath material
367	..Single metal produced	393	....Purifying or treating electrolyte or bath prior to or after synthesis
368	...Rare earth metal (At. No. 21, 39 or 57-71)	394	....Bath contains fluorine or bromine containing compound other than cryolite (Na ₃ AlF ₆)
369	...Lead, zinc, or cadmium	395	.....Fluorine or bromine containing compound contains alkaline earth metal, beryllium, or magnesium (Ca, Sr, Ba, Ra, Be, or Mg)
370	...Iron, cobalt, nickel, or manganese		
371	...Vanadium, niobium, tantalum, chromium, molybdenum, or tungsten (V, Nb, Ta, Cr, Mo, or W)		
372	...Aluminum		
373	....And elemental alkali or alkaline earth metal, magnesium, beryllium, or nonmetal element other than halogen produced		
374	....Utilizing specified current distributing means or method other than wire connecting means		
375	....Utilizing specified distance between cathode and anode		
376	....Agitating or moving electrolyte or bath during synthesis		

396	....Utilizing specified process step to maintain bath temperature	425	.....Diverse hetero atoms in the polycyclo ring system
397	...Titanium, zirconium, or hafnium (Ti, Zr, or Hf)	426	....The hetero ring is six-membered
398	....Titanium	427	...Oxygen containing hetero ring
399	.....Utilizing specified electrode structure or anode alloy composition	428	....The hetero ring is three-membered
400	.....Utilizing diaphragm or barrier between anode and cathode	429	..Cyclopentanohydrophenanthrene ring system containing compound produced (e.g., steroids, etc.)
401	.....Bath contains metal oxide or fluorine containing compound	430	..By fluorination of organic compound other than hydrocarbon or halogenated hydrocarbon
402	...Alkaline earth metal, beryllium, or magnesium	431	..Nitrogen containing compound produced
403	....Beryllium	432	...Nitrogen bonded to nitrogen
404	....Magnesium	433	...Carbon triple bonded to nitrogen
405	.....Bath contains alkali metal or fluorine containing compound	434	...Carboxamide
406	..Alkali metal (Li, Na, K, Rb, Cs, or Fr)	435	...-COO- group containing
407	....Lithium, sodium, or potassium	436	...Oxygen containing
408	.....Sodium	437	....Hydroxy containing
409	.....Bath contains halide other than sodium chloride	438	...Carbocyclic ring containing
410	..Silicon, boron, or phosphorus produced	439	..Carbonate or peroxy compound produced
411	..Halogen produced	440	..Carboxylic acid or derivative produced
412	..Heating or cooling electrolyte or bath in production cell during synthesis except in fused bath	441	...Carboxylic acid ester produced
413	..Preparing organic compound	442	...Carbocyclic ring containing
414	..By polymerization	443	...Carbonyl or hydroxy group containing other than as part of the carboxylic acid or derivative
415	..By dimerization	444	..Sulfur containing compound produced
416	....Nitrogen containing dimer produced	445	...Oxygen containing
417	.....Adiponitrile	446	..Ketone produced
418	....Carbonyl or hydroxy containing dimer produced	447	...By electrolytic oxidation only
419	...From ring containing reactant	448	..Aldehyde produced
420	..Silicon, boron, or phosphorus containing compound produced	449	...By electrolytic oxidation only
421	..Carbohydrate or derivative containing compound produced (e.g., streptomycin, etc.)	450	..Alcohol or alcoholate produced
422	..Heterocyclic compound produced	451	...Halogen containing
423	...Nitrogen containing hetero ring	452	...By electrolytic oxidation only
424	....Polycyclo ring system having the hetero ring as one of the cyclos	453	...Carbocyclic ring containing
		454	...Four or more hydroxy groups
		455	..Oxygen containing compound produced
		456	...Carbocyclic ring containing
		457	..Metal containing compound produced
		458	...Lead containing
		459	..Halogen containing compound produced

460	...Fluorine containing	501	.....Utilizing tubular or coated electrode
461	...Acyclic	502	.....Chlorate
462	..Hydrocarbon produced	503	.....Alkali metal containing
463	..Carbocyclic ring containing	504	.....Utilizing graphite or inorganic carbon containing electrode
464	..Preparing inorganic compound	505	.....Utilizing coated electrode
465	..Peroxy compound produced	506	....Germanium, tin, or lead containing (Ge, Sn, or Pb)
466	...Hydrogen peroxide	507	....Copper, silver, or gold containing (Cu, Ag, or Au)
467	....Utilizing mercury or amalgam electrode	508	...Hydroxide
468	....Utilizing inorganic carbon containing electrode	509	....Group VIII metal containing
469	...Boron containing	510	....Alkali metal containing
470	...Phosphorus containing	511	.....Utilizing bipolar electrode
471	...Sulfur containing	512	.....Potassium hydroxide produced
472	....Utilizing specified electrode	513	.....Utilizing filter press cell configuration
473	..Perhalogen acid or salt thereof produced	514	.....Utilizing cell having three or more compartments or units
474	...Perchlorate or perchloric acid	515	.....Including gas compartment
475	..Permanganate produced	516	....And elemental halogen produced
476	...Potassium containing	517	.....Utilizing structurally defined diaphragm or membrane or diaphragm or membrane other than nonstructurally defined single layer cation exchange membrane having single-type cation exchange groups (e.g., anion exchange membrane, etc.)
477	..Metal containing compound produced	518	.....Asbestos containing
478	...Carbon containing	519	.....And polymer containing
479	....Cyanide	520	.....Membrane having two or more different ion exchange groups in a single layer
480	....Carbonate or bicarbonate	521	.....Multilayered membrane
481	.....Lead containing	522	.....Roughened membrane
482	.....Alkali metal containing	523	.....Diaphragm or membrane having a specified porosity
483	...Chromium containing	524	.....Diaphragm or membrane having nonelectrode layer bonded thereto or embedded therein
484	....Chromate	525	.....Electrode bonded diaphragm or membrane
485	.....Alkali metal containing	526	.....Utilizing specified electrode (e.g., rod, cylinder, etc.)
486	....Chromic acid	527	.....Mercury or amalgam cathode
487	.....Utilizing specified electrode	528	.....Specified anode composition
488	...Phosphorus containing	529	.....Purifying the cathode
489	....Phosphate		
490	.....Alkali or alkaline earth metal, beryllium, or magnesium containing		
491	...Nitrogen containing		
492	....Nitrite		
493	....Nitrate		
494	...Sulfur containing (e.g., sulfide, etc.)		
495	....Sulfite, bisulfite, or dithionite		
496	....Sulfate or bisulfate		
497	.....Group VIII metal, lead, or copper containing (Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Pb, or Cu)		
498	...Halogen containing		
499	....Oxygen containing		
500	.....Hypochlorite or chlorite		

530	.....Concentrically arranged electrodes	555	..Carbon containing compound produced
531	.....Foraminous or perforated (e.g., mesh, screen, etc.)	556	..Halogen containing compound produced
532	.....Laminated or coated	557	..Preparing alloy
533	.....Polymer or graphite or inorganic carbon containing coating	558	..Amalgam produced (e.g., utilizing mercury or amalgam electrode during synthesis, etc.)
534	.....Raney metal containing coating (e.g., Ni-Al alloy, etc.)	559	...Precious metal containing (Ru, Rh, Pd, Os, Ir, Pt, Ag, or Au)
535	.....Valve metal containing electrode substrate (i.e., Ta, Nb, Hf, Zr, Ti, V, W, Be, or Al)	560	..Preparing single metal
536	.....Treating electrolyte or bath material prior to synthesis other than heating, cooling, or replacing consumed material during synthesis	561	..Utilizing bipolar electrode
537	.....Controlling electrolyte flow other than by flow through a diaphragm or membrane	562	..Mercury produced
538	...Oxide	563	..Arsenic, antimony, or bismuth produced (As, Sb, or Bi)
539	....Manganese containing	564	..Gallium, germanium, indium, vanadium, or molybdenum produced
540	....And elemental zinc or elemental manganese produced	565	..Precious metal produced
541	....Utilizing specified electrode	566	...Utilizing specified electrode other than consumable precious metal containing electrode
542	.....Titanium, zirconium, hafnium, vanadium, niobium, or tantalum containing (Ti, Zr, Hf, V, Nb, or Ta)	567	....Alloy electrode
543	....Group VIII metal containing	568	...Leaching, dissolving, or extracting prior to synthesis
544	....Germanium, tin, or lead containing	569	....Utilizing nitrogen containing material
545	....Copper, silver, gold, zinc, cadmium, or mercury containing (Cu, Ag, Au, Zn, Cd, or Hg)	570	....Utilizing halogen containing material
546	...Hydrate	571	...Silver or gold
547	...Germanium, tin, or lead containing	572	..Chromium produced
548	...Iron, cobalt, or nickel containing	573	..Manganese produced
549	..Silicon, boron, or phosphorus containing compound produced	574	..Copper produced
550	...Phosphine	575	...Utilizing specified electrode other than consumable copper containing electrode
551	..Nitrogen containing compound produced	576	....Specified anode
552	...Ammonia	577	....Elemental carbon containing (e.g., graphite, etc.)
553	...Nitric acid or oxide of nitrogen	578	....Lead containing
554	..Sulfur containing compound produced	579	....Iron, cobalt, or nickel containing
		580	...Leaching, dissolving, or extracting prior to synthesis
		581	....Utilizing organic material
		582	....Utilizing halogen containing material
		583	....Utilizing sulfur containing material
		584	....Recycling electrolyte or bath material back to production cell after synthesis
		585	...Bath contains organic material

586	...Purifying or treating electrolyte or bath prior to or after synthesis	619	...Fluorine, bromine, or iodine produced
587	..Ion, cobalt, or nickel produced	620	...Chlorine and hydrogen produced
588	...Specified anode other than consumable iron, cobalt, or nickel containing	621	...Utilizing specified metal or alloy cathode
589	...Leaching, dissolving, or extracting prior to synthesis	622	...Utilizing specified electrode other than graphite or inorganic carbon
590	....Utilizing organic material	623	....Mercury or amalgam cathode
591	....Utilizing halogen containing material	624	....Diaphragm or membrane bonded electrode
592	.....Of iron	625	....Coated electrode
593	....Of iron	626	..Ozone produced
594	...Nickel	627	..Deuterium or tritium produced
595	...Bath contains organic material	628	..Oxygen and hydrogen produced
596	....Bath pH below 5	629	...Utilizing inorganic solid electrolyte
597	..Lead produced	630	...Utilizing specified electrode
598	...Utilizing specified electrode other than consumable lead containing electrode	631	....Specified single metal or alloy
599	...Leaching, dissolving, or extracting prior to synthesis	632	.....Group VIII metal
600	....Utilizing halogen containing material	633	..Oxygen produced
601	...Bath contains organic material	634	...Utilizing inorganic solid electrolyte
602	..Zinc produced	635	...Utilizing nonmetal containing electrode
603	...Utilizing specified electrode other than consumable zinc containing electrode	636	...Utilizing group VIII metal alloy electrode
604	...Leaching, dissolving, or extracting prior to synthesis	637	..Hydrogen produced
605	....Utilizing organic material	638	...Utilizing specified electrode
606	....Utilizing halogen containing material	639	....Specified single metal or alloy
607	....Utilizing sulfur containing material	640	ELECTROLYTIC EROSION OF A WORKPIECE FOR SHAPE OR SURFACE CHANGE (E.G., ETCHING, POLISHING, ETC.) (PROCESS AND ELECTROLYTE COMPOSITION)
608	.....Removing iron or iron containing material	641	.With control responsive to sensed condition
609	...Bath contains silver, strontium, or organic material	642	..To adjust voltage across or size of tool-workpiece gap
610	..Tin produced	643	...In response to sensed voltage
611	...Leaching, dissolving, or extracting prior to synthesis	644	..In response to sensed voltage or current
612	....Utilizing halogen containing material	645	.With measuring, testing, or sensing
613	....Utilizing sulfur containing material	646	.With programmed, cyclic, or time responsive control
614	...Bath contains silicon or organic material	647	..Including nonelectrolytic erosion
615	..Preparing nonmetal element	648	..Using diverse-type tool electrodes
616	..Utilizing bipolar electrode	649	..Eroding workpiece to match nonplanar surface shape of tool electrode
617	..Sulfur or nitrogen produced		
618	..Halogen produced		

650	..Cleaning, recycling, or reusing electrolyte	680	...More than 20 weight percent of one or more phosphoric acids
651	..Moving tool or workpiece	681	..Chromium containing
652	.Gap maintenance or defined tool-workpiece gap	682	..Phosphorus containing
653	..Using tool electrode with two or more holes for passage of electrolyte	683	..Cyano compound containing (e.g., hydrogen cyanide, etc.)
654	..Moving tool electrode	684	..Organic material containing
655	..With irradiation or illumination	685	..Nitrate containing (e.g., nitric acid, sodium nitrate, etc.)
656	.Eroding workpiece of nonuniform internal electrical characteristics	686	.Moving tool electrode
657	.Internal battery action	687	ELECTROLYTIC MATERIAL TREATMENT (PRODUCT, PROCESS, AND ELECTROLYTE COMPOSITION)
658	.Simple alternating current	688	.Organic
659	..Plural separate currents or voltages applied	689	..Fibrous
660	.Preliminary cleaning or shaping of workpiece	690	...Bleaching
661	..Nonelectrolytic (e.g., mechanical grinding, milling, machining, etc.)	691	...Dyeing
662	..With mechanical abrasion or grinding	692	...Hides or skins
663	..Rotating tool or workpiece	693	...Cleaning or refining
664	.Sharpening or point making	694	...Protection
665	.Aperture making	695	..Oil or fat
666	.Using mask	696	...Hydrocarbon oil
667	..Of photoresist or radiation resist	697	..Sugar
668	.Local application of electrolyte	698	..Cellulosic
669	..Using surface tension or capillary action to hold electrolyte in contact with workpiece	699	..Rubber or latex
670	..Through open nozzle or flow-through piping (e.g., unsupported jet, etc.)	700	..Bleaching
671	.Agitation or vibration of electrolyte	701	..Biological (e.g., sterilizing, etc.)
672	.Defined electrolyte movement or pressure	702	..Removing metal
673	.Regenerating or rehabilitating, per se, of electrolyte	703	..Using membrane
674	.Electrolyte composition or defined electrolyte	704	.Metal or metal alloy
675	..Less than 50 weight percent water	705	..Removing foreign material (e.g., cleaning, etc.)
676	...More than 20 weight percent organic material	706	...Internal battery action
677	....With one or more phosphoric acids	707	....From precious metal or precious metal alloy
678	....With sulfuric acid	708	....Using anode containing aluminum
679	...More than 20 weight percent chromium compound	709	...With solid-workpiece moving contact (e.g., brushing, etc.)
		710	...With changing current
		711	....Simple alternating current
		712	...Nonelemental material from ferrous metal
		713	....Using fused bath (e.g., molten salt, etc.)
		714	....Using acidic electrolyte
		715	....Containing one or more phosphoric acids
		716	....Containing nitric acid
		717	...Entire identifiable elemental layer or portion removed (e.g., stripping, etc.)

718	....Precious metal removed	752	...And treatment with oxygen or ozone
719	....Tin removed	753	..Using particle bed
720	....Nickel removed	754	...As electrode
721	....Copper removed	755	..With mixing, agitating, or gas-liquid contacting
722	...Using electrolyte containing surface active agent (e.g., foaming or wetting agent, etc.)	756	...Using oxygenating gas (e.g., ozone, air, etc.)
723	...Using acidic electrolyte	757	...Bubbling (e.g., for flotation of solids, etc.)
724	..Object protection	758	..Using porous electrode (e.g., perforated, etc.)
725	...With control responsive to sensed condition	759	..Using coated electrode (e.g., having electrocatalytic coating, etc.)
726	....Current sensed	760	..Using electrode containing precious metal or free carbon (e.g., insoluble electrode, etc.)
727	....Voltage sensed	761	..Using electrode containing ferrous metal
728	.....And programmed, cyclic, or time responsive control	762	..Alkali-forming metal hydroxide
729	...With programmed, cyclic, or time responsive control	763	..Gas, vapor, or critical fluid
730	...Internal battery action (e.g., using sacrificial anode, etc.)	764	..Internal battery action
731	....Ferrous metal	765	..Using solid electrolyte
732	.....Using anode containing aluminum	766	..Solid (e.g., articles, particles, ore, etc.)
733	.....Using anode containing magnesium	767	..Containing precious metal (e.g., beneficiating ore, etc.)
734	...Metal imbedded in asphalt, concrete, stone, or masonry, (e.g., reinforced concrete, etc.)	768	..Containing free carbon (e.g., graphite, carbon black, etc.)
735	...Ferrous metal	769	..Glass, silica, quartz, or optical material (e.g., contact lenses, etc.)
736	....Stainless steel	770	..Using membrane
737	....Using anode containing free carbon (e.g., graphite, carbon fibers, etc.)	771	..Removing metal
738	...Using anode containing precious metal	772	..Copper
739	...Using anode containing free carbon (e.g., graphite, carbon fibers, etc.)	775	ELECTROLYTIC ANALYSIS OR TESTING (PROCESS AND ELECTROLYTE COMPOSITION)
740	...Vessel (e.g., ship hull, steam boiler, etc.)	775.5	..For corrosion
741	..Containing iron	776	..Testing by internal battery action
742	..Water, sewage, or other waste water	776.5	..Of coating, coated substrate, or imbedded object
743	..With control responsive to sensed condition	777	..Of ferrous metal
744	..With programmed, cyclic, or time responsive control	777.5	..Involving enzyme or micro-organism
745	..Internal battery action	778	..And using semipermeable membrane
746	..Using membrane	778.5	..For halogen or halogen containing compound
747	...With filtering	779	..In biological fluid (e.g., urine, etc.)
748	...Plural membranes		
749	....With recycle or reuse		
750	...Removing metal		
751	..With filtering		

779.5 ..Gaseous halogen or halogen
containing compound

780 ..Using electrode containing
precious metal or free carbon

780.5 .For nitrogen or nitrogen
containing compound

781 ..Including nitrogen oxide (e.g.,
gaseous nitrogen dioxide,
dissolved sodium nitrate,
etc.)

781.5 .For alkali metal, alkaline earth
metal, or compound thereof

782 .For oxygen or oxygen containing
compound (except water)

782.5 ..Using semipermeable membrane

783 ...Gaseous oxygen or oxygen
containing compound

783.5 ..Using solid electrolyte

784 ...Gaseous oxygen or oxygen
containing compound

784.5In combustible gas (e.g.,
air/fuel mixture for internal
combustion engine, etc.)

785With heating or temperature
sensing

785.5 ..Gaseous oxygen or oxygen
containing compound

786 ..Using electrode containing
precious metal or free carbon

786.5 .For sulfur or sulfur containing
compound

787 .For organic compound

787.5 .For pH

788 .For water (e.g., moisture, etc.)

788.5 .Including titration

789 .For ion concentration (e.g., ion
activity, pKa, etc.)

789.5 ..Cations

790 .For composition of metal or
metal alloy

790.5 .For properties of solid material
(e.g., surface area, etc.)

791 ..Of coating or coated substrate
(e.g., thickness, bonding
strength, etc.)

791.5 ..Defects

792 .Of biological material (e.g.,
urine, etc.)

792.5 .Using ion exchange resin

793 .Using semipermeable membrane

793.5 .Tracking chemical reactions

794 ..Coating (e.g., electroless,
etc.)

794.5 .Using electrode containing
precious metal or free carbon

799 MISCELLANEOUS ELECTROLYSIS

CROSS-REFERENCE ART COLLECTIONS

915 ELECTROLYTIC DEPOSITION OF
SEMICONDUCTOR

916 SEQUENTIAL ELECTROLYTIC AND
NONELECTROLYTIC, OR
NONELECTROLYTIC AND
ELECTROLYTIC COATING FROM THE
SAME BATH

917 TREATMENT OF WORKPIECE BETWEEN
COATING STEPS

918 USE OF WAVE ENERGY OR ELECTRICAL
DISCHARGE DURING PRETREATMENT
OF SUBSTRATE OR POST-TREATMENT
OF COATING

919 WATERPROOFING

920 ELECTROLYTIC COATING OF CIRCUIT
BOARD OR PRINTED CIRCUIT
(OTHER THAN SELECTED AREA
COATING)

921 ELECTROLYTIC COATING OF PRINTING
MEMBER (OTHER THAN SELECTED
AREA COATING)

922 ELECTROLYTIC COATING OF MAGNETIC
STORAGE MEDIUM (OTHER THAN
SELECTED AREA COATING)

923 SOLAR COLLECTOR OR ABSORBER

924 ELECTROLYTIC COATING SUBSTRATE
PREDOMINANTLY COMPRISED OF
SPECIFIED SYNTHETIC RESIN

925 .Synthetic resin is electrically
conductive

926 .Polyamide or polyimide (e.g.,
nylon, etc.)

927 .Polyolefin (e.g., polyethylene,
polypropylene, etc.)

928 .ABS Copolymer

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS